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Industry's

Australian

government

THE Australian computer Industry has asked the Minister for Business and Consumer Affairs to exclude all business

and commercial tronsactions

from the country's controversia

force in July, has caused all the major manufocturers except ICL and Fujitsu Io suspend the

signing of contracts with new

customers, because they believe

that the Act leaves them open to unlimited liebility for the per-

formance of their products (CW,

The request is contained in a

submission to Minister Wal Fife from CDC, DEC, Honeywell, IBM, NCR, Burroughs, Data

General, Facom, Hewlett-Pa-

ckard, ICL, Olivetti and Univac.

companies, "that consumer

transactions be confined to

goods or services for domestic or

implied terms and to fimit

liability as they consider apuro-

"It is our opinion," say the

The Act, which came into

# A trip to the seaside could mean your ticket to success.

The sea. The south coast. The Downs. The key to them ell is ITT Business Systems' expanding Menagement Services Department.

Part of the world's leading industrial corporation, ITT Business Systems has earned en enviable reputation as one of the leading suppliers in the repidly expanding field of telecommunications and data communications and the Group's contribution to the UK's sophisticated business systems and

machinery market is growing steadily with every year. At the heart of ITT Business Systems Group is the central computer section located at ITT Creed in Brighton. The section comprises: a 1/2-megebyte IBM 370/138 operating under CICS end DOS/VS. Peripheral equipment includes an IBM System 7 for Shop Floor Data Collection, IBM 3776 RJE terminals, ITT 3280 on-line VDU's, covering several UK locations. With the expansion and restructuring of the Group comes the need for additional systems analysis end programming specialists, the men and women who will develop, implement and maintain the systems that will take us successfully into the next decade.

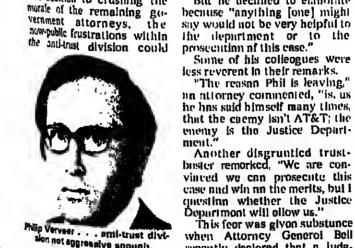
A new phese of manufacturing control systems in the area of on-line stock control and assembly manufacturing control systems. Plus an additional

requirement for a new on-line, fully-integrated purchesing, goods receivables and bought ledger system. Similar experience - ideally in shop scheduling and inventory control-is vital.

**Business Analyst** The opportunity to become closely involved in the introduction of a major new product. This is the prospect for the mature System's Analyst, again with about three years' experience, at a different SE England location, very much in a consultancy-cumco-ordinating role with the support of the systems

The new systems will have the complex task of covering marketing end sales order book requirements, matching equipment configuration with customer specifications, inventory control, on-site installation and maintenance. Systems Analysts

There are vacancies in several distinct areas, months' systems analysis experience.



riors with a lack of aggressive-

And Griffen Bell, US Attor-

made public his belief that

adigh the merits of the AT&T

in addition to crushing the

# South African PoS deal

THE first locally made point-of-sale termins in South Africa the ADS 4900, is now being markeled by Anker Deta Systems. the Swiss-controlled cash reg-

It sells for about one-third of the Cost of a comparable a year (31/2 million). Imported product, was

iocoi content.

IHE lead sttorney in the US persuade the Supreme Courl

greenment's anti-trust AT&T that this case, the largest

trial learn has resigned from the anti-trust prosecution in US

department, charging his supe- legal history, may pose problems

dustice Department.

But he declined to elaborate

less reverent in their remarks.

"The reason Phil is leaving,"

ADS is said to be aiming for sales of Ri,5 million (£1 million) by the end of 1977 which would, occording to estimates, give the company a penetrotion of 30% in a markat worth about R5 million.

it is compatible with any developed at an estimated cost of R250,000 and has about 80% it is compatible and is almed at supermorkets and banks.

If something is wrong with its system, the company contends,

Some of his colleagues were

nn attorney commented, "is, us he has said himself many times, that the cuemy Isn't AT&T; the enemy is the Justice Depart-

Another disgrunticd trust-buster remorked, "We are convinced we can prosecute this ease and win an the merits, bui i presting whether the Justice Department will ollow us."

This feor was given substunce when Attorney Generol Bell recently declored that a judg-

lawyer resigns as the break-up of AT&T should not be made in the "narrow frame of a lawsuit," Bell

too monumental for the churis vented by giving the case to When Philip Verveer, the lead AT&T, the main US supplier ney-General, shortly afterwards attorney, announced that he of communications services, is was resigning from the suite, Congress, not the courts, muy be which is now entering its fourth proper forum in which to year, he conceded that there are grave problems within the

presently appenling to the Supreme Court for a ruling that the company is humane from prosecution under US anti-trust laws since it is "pervasively regulated" on a common carrier

instead suggested that the

anti-trust law should be circum-

t is the responsibility of the Federal Communications Commission und the state regulatory

well on a "totally intograted system that can be applied to

### personal use, and that in all usiness transactions, suppliers should be able to exclude the

nhanced TDC 2000 will enable

would merely legalise the use of

government of using the aill as

# priate, subject to the test of 'fair and reasonable'." Dataskil contract

A CONTRACT for program conversion from ICL 1900 to 2900 has been awarded to Dataskil by the Hong Kong government. The 37 programs, mainly written in Cobol, are part of the Impact stock control system for the government's supplies department.

A number of these eystems are being transferred from 1903T and 1904S to a pair of 2970s.

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# No moves by Nixdorf on Redifon's Eastern front

Computers in the Eastern bioc with its Seecheck key-to-disc system is unlikely to be challenged by Nixdorf despite the West German company's ocquisition of

Entrex is the US firm that gave Redifon siem under licence in early 1971, and

Seecheck system and to seil it in most parts of Western Europe as the 620 series. Nixdorf says that the Entrex contract

with Rediton still applies, even though although the comment on this.

However, by that time Nixdorf may have plans to move into Eastern Europe with the 620 series or derivatives of it, although the company is not prepared to

Redifon points out that the contract was renewed with Entrex last year for a live-year period and will not be due for re-negotiation until 1881.

Redifon Computers does big business in several Comecon countries, notably Czeciosiovakia, where it has a permanent offica (CWi, June 9) and Poland, where Seecheck is now manufactured by Mermat (CWI, January 13), It has now broken into the potentially enormous



s company's sland at Intarko n West Germany last week. This Stuction has been reached by d TDC 2000 Process Control

# French privacy Bill passed

ilcences, which are genarally

favoured by bodies representing

inatead, organizations will

merely have to tell the authority

of the axistence of systems

Whan collacting personal

information organisationa will heve to tall the parson whether it is obligatory for him to give the information and who will sea

of systams will be

the UK computer industry.

available to the public.

A Bill aimed at giving protec-tion to personal information or portly to the new laws. tion of o 12-person authority held in computer systems was which will make sure the law is possed by the French parlioment observed and act on complaints from the public, it will not issue

The Bill, which chvars everything from the constitution of a nntional data protection authority to the size of fines for breaking the law, follows three years of government atudies.

Data protection laws will cover information systems run in both the public ond private sectors. The original text was restricted to computer systems, but this was amended during the

parliamentary debate. Now, a nanual file which is a danger to privacy aithar in itself or in the way it is used with a computa-

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# it. Tha Individual will be abla to Penalties for breaking the law range from six months to two range from six months to two-years in prison, and fines of between £23 and £23,000 for implementing systems without informing the authority, to one to five years in prison and fines of between £2,300 and £230,000 for liagally recording personal

data.
The Bill received 289 votes, with 176 mainly Communist and Socialist Votes against A Com-

Taylor on show

ON show et the Taylor Instru-ment stand at Interkama. Dus-seldorf, were the company's MOD III, and 1010 process control systems. The exhibition ren from Odober 6 to 12 and laylor Instruments MOD III configuration included a conso-it, a 1010 computer system, a line printer, and a colour VDV

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# The Crunch for a phone phreak

you're logging down the track in the prison yard and they throw a blanket over your head and they beat you, maybe to death —

That is what John Drsper lesmed in Jail. What his fellow ingreates her road from him in red. clear, but they could have got an inside track on just how to rob the telephone system.

That is why Draper spent several months in the Federal minimum security prison at Lompoc, California: fraud by wire, Title 18, Section 1343, of the United States criminal code. His crime involved the use of an electronic devica commonly called a blua box to defeat the telephone system's billing appa-

What, if anything, Draper told the threatening and inqui-sitive inmates, including "three people who were ex-engineers," hardly matters.

The methods of the phone phreaks, as the people who like to beat the telephone system are called, are common enough knowledge. Thousands in the US are believed to be defrauding iephone companies, and only a believe they are helping to destroy a pernicious Establishment, epitomised by the American Telephone and Telegraph

by and for these technological guerrilisa, affects a leftistanarchist style. It has been available for \$5 per year simply by writing to Room 418, 152 West 42nd Street, New York, New York 10036.

hardened criminal nor achieve quite a bit of notoriety under the name Captsin

caramel popcom that once offared a free whistle in each box of candy. That whistle emitted a 2,600 Hz tone, coincidentally a

A caller using cartain long distance circults could blow a Csptain Crunch whistle and then pipe a sequence of other audio tones into the mouthplece of any telephone to obtain a free cail, John Draper has been credited with discovering the unususi properties of that tiny plastic whistla, hence his

TAP, a newsletter published telephone network, phone phresks have reportedly explored the separste but interconnucted systems of the military, government agencies, and law enforcement authorities. All these systems are connected to

While Draper is neither s wild-eyed revolutionary, he did Captain Crunch is a brand of

signalling frequency used by AT&T's equipment.

organisation, Overseas Servicea. the phone phreaks.

# Germans launch a micro

GERMANY'a only surviving lates the Dietz 1621 code. The general-purpose minimakar, 1621 code is used on all the Dietz Dietz, has introduced a microcomputer code compatible with

from 2901 bit-slice micros. offered by AMD and Motorola. together with a programmable read-only memory which amu-

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621 machines, notably the 621-X1 and X2. The Micro-621

tions.

It will also be offered as an OEM device, and is already being used by Hengstler in a "flexitime" clock recording system by employees in factories and labor stories in male its first appearance at the interplanta fair in Dusseldorf and will also be shewn at Systems 77 in Municipals.



Nost plotures of the IBM Series 1 minicomputer have come from the company's original set of publicity shots, so it makes a change to set lose femilier surroundings, in this case at lest month's \$kob hibition in Peris. CAP Microsoft proudly showed of hi aw wiy-acquired Series 1 at Detafeir lest wask, but reported melvity that for from being impressed, three visitors thought it was a colle vending mechine. Sic transit glorie mundi.

# Systems house wins first big overseas order

SYSTEMS house Toltec Data, of Interactivs-16 softwere, which Cambridge, has received its first provides interactive editing, t large overseas order, for a disc unit and software to anhance a microprocessor-based data col-Draper, who served the army of lection system at the Max Planck medicol research institute in Heidelberg, West Germany.

criminal, but there are indica-The institute's system, based tions that the Federsi Bureau of on a Computer Automation investigation may feel other-Alphs LSi-2 processor, takes dota from analytical instru-A man who goes by the name ments and performs some preof Chic Eder has reportedly processing on it before putting it befriended Draper, According to on magnetic tope for further a source in the counterculture

press. Chic Eder was a compa-Toltec has supplied one of its nion of the late comedian Lanny Bruce and may have been a paid informant involved in Bruce's Draper might not be the object of an FBi investigation,

own packaged twin floppy disc aubsystems for attachment to keep an eye on our installations the LSi-2. At the same time, nr to advise on new ones," \$435 Toltec has sold a copy of the monaging director Paul Reeve.

Air reservations agreement WiTH ironalr's 370/158 based own IBM 370/168 system at reservations system (CWI, July Amstelveenin Holland beforeign own system goes live. The should hoppen in mid-1979. 3, 1975), duo to go live in November in Teharan, the Royal

disc operating system, fi

tran compiler, loader, library

program and disc utilities.

Interactive-16 was originally

Unlike many companies sel-

ing hardware and software

products, Toltec Intends to

manage all European sales fixel.

This will be achieved without

rather than through an agent

a permanent base, by sending

members of staff periodically to

the countries concerned, "

developed at Cambridge Uni

Another national airline, Yo-Dutch Airline, KLM, which hus guslovenski Aerotransport, JAI, been heiping ironoir with its of Yugoslavio has signed an agreement with KLM to us Implementation, has just signed a similar ogreement with Paki-Corda on the Amstelveen sysstan International Airlines, PIA. tem. JAT offices in most main Like transir, PiA will run Yugoslavian cities and is Computerised Reservuinternutional JAT offices will be equipped with terminals linked tions Royul Dutch Airlinea, Cordn, system but unlike irnnuir PIA will not use Cordo on KLM's

# ON SHOW AT

SYSTEMS '77



application, the Megadeta System 700 is adaptable to voice is adaptable to your needs, and ensures full compatibility with already existing equipment, thus considerably improving equipment, thus considerably the systems overall efficiency

**Geurotech** 

# Palmer's camera eye-view of some of the latest products at Sicob

# CII-HB policy for Level 6/30 and 6/40 minis

the company is to build the Level 6/30 and 6/40 minicomputers at its Angers factory and sell Them into the OEM market.

The company's attractive stand was laid out as a "comuling village," with applica-Office, the Mayor's office and so forth. The three young ladies, pictured right, wearing the very fetching cheesecloth dresses chosen by the French company this year, were located in the Syndicat d'initiative booth. The French government has

ust announced its provisions for support of CII-Honeywell Bull in the 1978 budget. The total sum being set aside is 500 million francs (£84 million). This is broken down into 265 million francs as a direct aubvention state's contribution to a plan ned Increase in CII-HB's share capital in 1978; 140 million francs which does not go to CII-HB but to the companies which have taken over some of the activities of the former CII; The commitment is to give the

# 4% short of the promised figure in the year to March, 1977, and the government hopes that the

possible shortfall in the orders

promised by the state to CII-HB.

and 60 million francs against a company 55% of the value of any

shortfall in the planned level of

public sector business.

### trench debut CLAIMED by Olivetti to be the only

casety programmable in a high-inel language, the P8040 (pictur-dingle) made to French debut at Skob, it sells for shout £2,000, and includes a 16 column printer shoused in Diverti's calculators, a min display for operator guidence, has a 3 in dameter 3 K-byte disp for fels rights and program answers dete storage and program entry, and is programmed in mini-Beatc. Pickages are available for civil em-genering and statistics.



# Datasaab accent on comfort

ONE of the most notuble features of the new Datasanb 16/30 workstation - oriented business system is the specialh designed display terminal, shown below.



mely demnnding about ergono develop several new foutures to unke the terminal as comfortthie to use as possible," said a To this end, the characters on

the scroon are yellow, on a bruwn bockground, said to be the most restful cumbination. The dispiny and separate key-brard can each be mounted of various angles.

Most of the naw equipment of

Sloob Included an Intal 8080 micro, snd the new Dntasoab

# Commodore's PET



stands for Personal Electronic Transactor. The deak-top insoline is an account of the domestic market, and for professional people with went panes. Based on the MOS Technology 6502 market programmed in the MOS Technology 6502 market programmed in the MOS. The latest programmed in the MOS. The 

# Cornerstone of the Mael line

has exhibited \$1 Sloob under the name of a distributor. Cigec, but this year the company showed its Mael 1000, 2000 and 4000 systems under its own name. The company now plans to

which will market the product line in the Parls srea, but it is looking for distributors interested in selling in the French regions. Cornerstone of the Mael product line is the Mael 2000,

seen here with Sergio Rocco. one of its principal designers.
The powerful business aystem is at present based on the Fairchild F8 micro. "It is not a microprogramm-

ed machine, and we don't want to be tied to one micro," says Signor Rocco. "The F8 is a 2 microsecond cycle device, and we are planning to switch to a but we have not yet decided



piled, and the interpreter takes 16K-bytea of memory, leaving 48K-bytes for the user.

There is an assembler with a control source generator pro-gram, and facilities include a sort language, an Index sequential package and the "You can move 4K-bytes in

one macro-instruction," commented Rocco.

A useful facility is the 1K diagnostic program, which is supplied to the user on a floppy Insel uses a proprietary disc, so that he can check out

disc system, is being developed to cover the power of the larger hut older Mael 4000, and data format compatibility will be

Double-density double-sided floppy discs will be introduced on the 2000 next year, and software is organised in the same way on both floppy and

Insel did 3,500 miltion lire worth of business (about £2.3 million) last year, and hopes to double It this year. About 70% of its business is outside Italy. with Germany the lorgest market and the UK second through its agreement with Computer Ancillaries. It is active in Holland and looking to do business with the Portuguese government.

A major project is under way with Bank Melil Iran to design back-office banking systems based on the Mael 4000. The contract was won in competition with IBM, NCR, Burroughs and Honeywell.

# Distributed data REMOTE ENOURY RETRIEVAL CREEN DISTRIBUTED PROCESSING data processing as well, which

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summation of what distributed

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Telephone access to computers by unauthorised persons

jeopardises the security of criminal records systems, militery personnel files and the dossiers kept by credit reporting sgencies. Not only can a plione phreak gain remote accesa to such sensitive material; he can do so without leaving any trace of his clandestine activities.

'Phone phreaks' gear dafeats the records left in the telephone system's billing apparatus," explained SRi International's computer crime expert, Donn may serve as the basia of other criminal charges, for example

has become very concerned

about the activities of people

in addition to the public

unusual speciality.

similar difficulties.

getting s number of clienta with

AT&T is reportedly devising

ways of catching the phone phreaks these days, and that would help explain Brookman's

observation that incidence of

this crime peaked in 1974 or

The attorney believes that the

legal tactics used to prosecute

some phone phreaks are uncon-

stitutional. The warrants used to

obtain telephone records in

attempts to establish a pattern

of suspicioua calls are, in his

phone phreaks as an anti-hero

for a short while, is not a major

arrest on narcotics charges.

but instead could be used as a

pawn in some game to trap

narcotics dealers or other crimi-

Draper, according to this

hypothesis, coud get caught in

the trap, an unfortunate casual-ty, while Chic Edar bargains his

way out by testifying for the

For now, though, Draper Is using his keen mind for benefi-

ciai purposes. He has designed o

communications system for the

personal computars made by

That system will enabla hob-

bylata to build networks of

inexpensive computers and the-

reby exchange programs elec-

California's Apple Computar

prosecution.

nion, too vague and general.

Brookman may feel that

like John Draper.

A study of the US government's attempts to hait organised crime notes that of all the varioua charges filed against persons arrested by its special organised crime task forces, conspiracy was by far the most common. Thus the Mafia has a special Interest in learning the

methods of the phone phreaks. in addition, Parker pointed out that other criminals have also succumbed to justice as a result of their telephone crimes while remaining immune from prosecution for other misdeeds. "Bernie Cornfield," says Par-

ker, "might not be in jall today if he hadn't broken the law with a blue box." Cornfleid for years ran the scandal-ridden financial investors

But Draper is not a hardened criminal. Both Parker, who has interviewed him, and Draper's sttorney, Daniel Brookman of Los Angeles, have characterised Draper as rather simple and naive, despite his wizardry where telephones are concerned. In many ways, according to

Most are young, including many engineering students, and nearly all are far removed from the underworld. They ottack the telephone system more for the challenge than for personal gain, according to a former university

tronically or angage in long-diatance computer tournaments.

the rest of its 621 line.
Called tha Micro-621, the new machina has a processor built up

thus offers full software compa-

tibility with the rest of the line.

The Mulhelm based firm anys that the main mamory is expandable from 2 to 26K 16-bit words; it offers from two to eight programming levals, la designed to fit standard 19in racking, and includes from two to aight slots on the bus for interface cards. Prices for tha Micro-621 atart at Dm 6,000

The new microcomputer is expected to be used for networking, and in a number of other process control applica-

was all that could be integrated

multiword instructions were at

first regarded as 100 complicated

was entirely based on single-

word 8-bit instructions. In these,

no more than three bits could be

spared for operand addresses,

allowing no more than & regist-

Larger main memorles had to

All this, however, was five

a way around the Intel 8008 reg-

ister preservation problem: con

nect a pushdown atack buffer to

one of the eight I/O channels

and preserve the contents of al

eight registers (including the H

and L registers (no Interrupt by a sequence of eight OUT instructions. Fifteenth months after that, in July, 1974, Intel

ltaelf announced the 8080 ml

croprocessor with a much en-

tiched order code, that includes

many two and three word in-

structions with 16-bit address

to be addressed directly by the

relevant instructions: as many

as on tha originol IBM 360/30

four times more than on the erstwhile IBM 1401 that had

been the workhorsa of the EDP

worid ae littla as ten yeara

previously.
Maybe the Intel 8080's order

code, and that of the competing Motorola M6800 and Zijog Z-80

are atili not ideal for the compilation of high-laval languages, Buithen, neither ere

the IBM 370 and DEC PDP-11

order codes, Nonetheless the

Intel 8080 has almost from tha

beginning been programmable in a PL/I subset, albeit via an

IBM 370 cross-compiler, and lar-

ge configurations, now support

o a rasident Basic interpreter.

Maybe Basic is not the best

high-level language on which to standardisa, but its widespread

adoption cannot be laid at the

Nor are microprocassors standing still in the ranga of

high-lavel languages that they offer. CAP-Microsoft has

devaloped the portable Micro-

Cobol compiler for all and any micros, as well as the Micro-

ADE debugging packaga. Other languages will doubtless follow. So with general purpose LSI microprocassors ovaliable on the civilian DP market for the last five years, and most of the deficiencies; of the aarlier dasigns, corrected as long as

three years ago, why are academics attacking micro-

What has happened in the last 12 months to disturb professors of computing and DP managers, that had not already bean aven

processors only now?

door of micros.

fleids that allow up to 64K bytes

ers of E bits to be addressed.

to design, the 8008 order code

"BROTHERS. The Invention of the printing press threatens to put the art of menuscript reproduction back 500 years. Heve you seen eny books produced by Herr Gutenberg? They are the ugliest things given to eny one to read since the depths of the derk ages after the Frankish

SUPPORTERS of Professor concerned at poor microprocessor design.

on microprocessor design had occurred when these defects were moet glaring: flve years ago. For microprocessors have on a single chip at the time, and not been with us for almost ten years, developed originally for the microminiaturised computers required on NASA's lunar lending module, They began to appear on the civilian DP market around 1968, but at first only to apecial order from lorge mainframe, minicomputer, and Intelligent terminal manufac-

be addressed indirectly via ad-LSI component menufacturdresses stored in two chained H (high order) and L (low order) address registers. But what do you do when an interrupt occurs ing techniques feature negligible unit production costs, but very high mask design and tooling up costs. So it is only on very long runs that any LSI component and you want to preserve the current contents of all registers can be produced cheeply. If LSI in mein memory backup locmicroprocessors had continued stions? How do you addresa to be manufacturad only to those backup locations, without special order, only the largest thereby corrupting the existing manufacturers could have efcontents of the H and L registforded them, and the tendency. of the computer industry to be dominated by sn ever smaller years sgo, And it took less than number of larger suppliers nine months for a small French systems house, R2E, to discover

would have been reinforced. The first manufacturer to try to base a challenge to the computer Industry's establishment on mass production of a cheap LSI microprocessor-based distributed processing terminal was Viatron in 1969, But Viatron was before its time, had underestimated the lead time before any LSI mask starts producing

## QUOTE

What has happened in the lest 12 months to disturb professore of computing end DP menagers that had not been even truer et any time in the previous five years? Only one thing: the advent of the microprocessor-based \$200 DIY computer kit, and the \$600 fully rogrammable end packagad personal computer during 1976.

satisfoctory yields, and was hit by a cash flow crisis just when US capital for speculative computer ventures was drying

up in the 1970-1971 recession. Thereafter, LSI microprocessor based terminal end other processors would have remained the privilege of the inreest manufacturers if Intal had not led other LSIdesigning general purpose LSI nicroprocessors thet could long runs, and yet be sold at moderate cost to large numbers systems houses of all alzes in not

too larga quantities. Intel, Motorola, National Semiconductor and all the other microprocessor man ufacturers are primarily LSI component manufacturers with electronic rather than computer expertise. inevitably it was their primarily electronics-oriented dealgnera who designed the first general-purpose, as distinct from special order inicroprocessora. Their first dasigna certainly ably the 4-bit word Intel 4004 of 1971 used mainly in pocket of calculators, and the 8-bit word Intel 8008 that appeared on the market in July 1972 and was the first to make an impact on the EDP industry.

As 8-bit parallel procassing five years? Only one thing: the

Invesions. Dull black and white print, unrelleved by the slightest Illumination, an offence to the human spirit."

If any frisr made such a speech five centuries ego - end there were probably several up and down Europe - he would heve had e point. Printing has taken most of the art and joy out of menuscript re-

Yet who, today, would be prepared to get up end say that the invention of the printing prese had been a bad thing? Take eway the edvertising, the pomogrephy, the cheep senactionellem, that between

them represent e large part of why comaa off tha world's printing present these days, and you are still lait with greeter output of the world's greet light sture, e greater dissamination of at ad ecientific knowledge than could be have been dreemed of in the days of hed



last June's NCC in Dallas, it seemed that no more than one DIY computer user in ten had apparently moved beyond gonie-playing applications to program a common-or-garden

Fred Lamond

Turn to Paga 31

# Dijkstra's micro attack now disclaim any intention of halting progress, and claim only to be concerned at noor micro. The arguments currently expressed against the poor design of micros would be more convincing if the academic oltack on microprocessor design had 1BM and other large mainframe and standing but diminishing manufacturers, but their deficiencies in their order codes advent of the nilcroprocessormanufacturers, but their based \$200 DIY computer kit

and the \$600 fully programmeble and packaged personal comput-Until then, the ever cheapar LSI microprocesaora had been bought mainly by manufacturers of traditional computar equipment. They hed allowed a growing number of amail terminal menufacturers and systems houses to undermine the

products were still eimed primarily at the DP professional. With the DIY computer kit

and the \$600 personal computer, we face a completely different product: one that bypasses the DP professional to appaal directly to the layman. So one is driven to the conclusion that it is this oppeol to non-DP loymen by a specific opplication of microprocessors, rather than any

and software dehugging tools, thet ore the real targets for Professur Dijkstra's uttack and the response it has elicited among so meny DP

Even so, it is nt first sight difficult to see why the activities of hobby programmers should be regarded as a threat by DP professionals. Walking around the Personal Computing Fair at copying of manuscripta. Above all, it weed reading and writing gradually from being the privilege of e small élite his the birthright of every men, women and child, however poor end humble. That, of course, made it a painful

development for those who had made e

living out of being emong the few who could read and write. It deprived monestenes of much of their social usefulness, end thus led to their ebolition in Northern Europeen countries e century later. But they survived elsewhere, and made up for the drying up of damend for their

More recently, some rodical

monagements have ordered

minis to replace their central

As long ae the diatributed

processing challenge came only

from minicomputers, however,

it could be contained. Minis may

size mainframes, but at £20,000

be much cheaper than mediur

moinframes entirely.

1 SUSPECT that believed all the over concern for protecting the innocent from DIY fools lies undeeper and far more rational deeper and far more rational computer.

The promise of a better I SUSPECT that beliend all the fear that the personal computer is about to invade the large corporation's head office, and desporation's head office, and destroy once and for all the DP department's control over its users' computing activities.

The centralised DP department of the centrali

med's position had aircady begun to be undermined before the dvent of the microprocessorbased personal computer by disributed minicomputers.

The number of dedicated apdirections implemented on minis has grown faster in the last five years, even in large corporate dquarters, than the number of spollcations on central mainframes. That is why the usiness minicomputer market medium size DP mainframe

inarkct growth curve shows signs uf flattening towerds bccoming purely o replacement demand for ageing systems.

to £100,000 esch they still represent quite substantial silces of investment. This is not the sort of investment that envisrge investment that envisrge investment that envisrge in the standing minis entirely, or have been too intelligent to try they have generally been able to computers starts dropping bases. corporation's department can undertaka surreptitiously without top level approval.

And when such top level approval has been sought, central DP departments have frequently been able to put a stop to it.

Even when central DP departments have been unable to stop distributed processing on the scales overwhalmingly on

computers starts dropping ba-low \$500, many middle-level formats to ensure compatibility with a central database, and to executives will start getting put themselves forward as datathese as Christmes presents, and base managers and corporate some will bring them into their DP consultants to the various offices. Even when executivea are not prepared to pay The Increasingly cheap persothemselves for computers to do nal computers threaten to their office work, a \$500 personal computer cen easily be hidden under "sundry office equipment" much more easily than a \$30,000 minicomputer. So

change all that, end to weight It looks as If the distributed

distributed user departments.

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manuscripts by greatly expanding their teaching eide, for which printing hed produced e greetly increesed demand.

in this month's Merketview, FRED

LAMOND, European editor of the

Austbach computer technology raports, explains why he believes the Gutenburg

get done more efficiently and more cheaply then aver before? Whetever happens in the future to Professor Dijkstre's standards, there ere in eny case two respects in which the advent of the microprocessor-

revolution should provide a salutary lesson for the DP managers, analysts end programmers who feel threatened by the

sdvance of microprocessor-besed perso-nel computers, end who have acclaimed

Professor Dilkatre's dietribe at IFIP

against the micro (CW, August 18).

processing trickle of determined user departments wishing to be independent of central control is about to become a flood. Whether the growing numbably in industry. Among the ers of personal computers that growing number of computer buffs who will acquire DIY ere going to be used ihroughout large corporations from now on computer kits or fully peckaged are competently programmed or personal computers will be not will depend in no small many enginears and workers in measure on the attitudes of the non-automated industrics. traditional DP departments, if they co-operate with the trend, they will be able to pass their

accumulated experience down to the user departments. If they try and act like Canute, the user departments will have to act surreptitiously and reinvent the wheel by learning from their own mistskes.

Not all the atandards to which central DP departments have been working will be relevant to the needs of the new distributed processing operations. Code op-timisation, for instance, will matter less and lass the cheaper primarily by computer selasmen

computer processors and their main memories become. Modulor programming wili remain relevant as a technique for saving on eoftware devalopment costs, by allowing as many programs as possible to shere common processing sub-routines. But its use in the organisation of overlays will be much lass important in small aingle program personal and of-fice computers, compared with muitiprogramming environments to optimise tha uee of expensiva centralisad main-

Does all this really represent a leap back 25 yaara? Surely documentation standards, modulor programming, and the other disciplines davaloped by

based personal computar are quite unmixed blessings. Both atem from the fact that they will spread knowledge end experience of programming logic and methods much more widely throughout the community.

The first is that they will help overcome the bottleneck in software skills that is generally acknowledged to be the greatest brake on the more widespread use of computers, not-

professors of his standing are

but tools to get the work done. If cheaper hardware tools have now become available that make some of an earlier

generation's software tools less

relevant, doee this metter ns

long as the practicel jobs for

which computers are employed

Once they have mastered computer programming tech-niques, their thoughts will turn naturally to their application in their own industrics that they know weil. The 1980s may thus see a much swifter advance in automating dull and repetitive unskilled jobs than has happened hitherto: nol just because the processors and their memories are becoming ever cheaper, but each problem will come increasingly from within each industry iteelf, instead of being promoted

and systems houses. The other aspect le the much wider access to social, economic and scientific datobases that a more widespread knowledge of computer programming and low. Knowledge is power. The more the knowledge contained in computerised dalabasee is accessible to the widest range of people, the more informed our democracles will be, and the safer everyone's freedom will be.

The ebolition of drudgery and a batter informed democracy then aver before. That is the promise of microprocessors end the personal computers based on them over the next ten yeara. How could that be a leap back 25

# domination of the DP market by The HEWLETT PACKARD

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invoicing and tax return package for his neighbouring stores.
Does it really matter whether these hobby programs follow all Professor Dijkatra's principles of modular programming and good documentation?

frequently from their ill-planned, ill-executed and illdocumented endeavours, and computars and the whole

these hobby programs follow all computers and the whole computer professions will be broadly incompated into disrapute.

This does indeed heppen, but it is hardly a new phenomenon.

There have always been and vill always be computer quacks, therefore has to start again from scratch, surely that's all part of the fun of learning.

Some DP professionals seem to worry that, tiring after a while of their other games, computer and the whole services to their order the services to th

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# RHEHRE

by their fellow men to write about the future — to planning and predicting the course of science and technology? How, in porticular, does science fiction view the future of computers? In this special Futureview interview, psychologist and computer acientist Dr Chris Evens talks to a fallow scientist. Dr isaac Aslmov.

Asimov, described as the world's greatest SF author, has written prolifically on both science fect and fiction, and is credited with inventing the concept of robotics. In his own words, he "outlewed the old-feshioned robot atories from the pages of respectable science fiction." He wee else the first writer to define rules which robots must follow when they become an intergrei part of our lives. Those are "Asimov's Three Laws of Robotica."

future developments in compucial intelligence and so on - 1'd like to ask how you feel about the usefulness of science fiction in a genoral sonse. Does it have any real predictive value, or is it just superior entertainment?

ASIMOV: Well, let's look at it this way; scionce fiction deals with the response of human beings to changes in the level of science and technology. It is the only form of literature which routinely deals with change and which assumes that the eociety of the future will be different from the society of today. The

EVANS: Before diacussing difference may be for the better or for the worse, but it will be

> Now this is important because there is no other form of literature that deals specifically with change. In ancient times, or even in relatively recant times, when people wrote about the future there was no real notion of change. Any future society was assumed to be just like the present one.

It was only with the establishment of the Industrial Revolution in Great Britain towards the end of the 18th Century and the beginning of the 19th, that for the first time

the rate of change within a society became fast enough for an Individual to observe It in his

And that meant the birth of a new curiosity, because until then people had not really worried about what the futuro

Now of course this brand new curiosity had to be fulfilled, and In order to fulfil it people triod with varying success to imagine what the future would be like. And thus acience fiction was

Now the Important thing is that the rate of change has continued to increase very

Asimov's three laws of robotics: 1.—A robot may not have being or through inaction allow a human being to come to harm. 2.—A robot must obey the orders given it by human here except when such orders would conflict with the first law. 3.—A robot must protect its own existence, except when a would conflict with the first or second laws.

# How robotswill develop into mankind-W Isaac Asimov

at a time when mankind is in a state of deep, deep trouble.

Unloss we can somehow anticipate the changes to come and order our lives in such a way that we can take advantage of them for the good of man, and not allow them to work for the bad of man, we are simply not going to survive.

It's for this reason that I think that science fiction is of trementhe only form of literature which gets people accustomed to the.

over a mass of technological possibilities and a mass of exciting and frightening futures. As far as I am concerned, no doubt because of my own Involvement in computer science and my passionate interest in its various possible futures. I have always been fascinated by your own computer and cybernetic stories - in particular the "I ROBOT" series". It alwoys comes as a bit of a surprise on re-reading them to see that you wrote them way back in the very enrly days of computing science, ot a time when only the most adventurous and uninhibited computer scientists were thinking about such things as the ethics of bullding robots with "personuli-

futurists, or at least those who

are any good at nil, have nt some

time in their life been interested

I do not think it is possible

that anyone can be truly

interested in the future and

never have been interested in

fiction has ranged very widely

Evans: Your own science

In science fiction.

science fiction.

Asimov: Yes, now you see this is an Interesting point because one would think that I wrote the stories hecouse I hud some Insight Into computer technology and could sec further than even the computer technologists thomselves. Nothing could be further than the truth, liceause when I first sturted writing my Robot series, back in 1939, it was before Vunnever Bush had put up his first all-electronic

ties", or computers with intelli-

i hod no knowledge whitsaever of computers, and I never did have until after the war, by which time the vorious Robert stories and "I ROBOT" had all

Actually, they come not front anything that was done in science but from the previous history of science fiction. Robots had been a staple of eorlicr science fiction, but they had almost always bean there in the form that had started with Mary Shelley's "Frankanateln."

In this concept the robot was n monstar, a soulless plece of life which hed bean produced by a

A scientist was defying God by taking over a God-like function, producing IIfa, and was therefore fittingly punished when the robot turned against him and had to be destroyed. It's tha Sorcerer's Apprentice theme all over again. Well, I grew thrad of that plot

and felt that it would be Interesting If I could treat robots Interesting if I could treat robots not as examples of scientists defying the gods, but just as enginearing devices which, like any other enginearing devicas, would have to have built-in safeguards. That was the important thing, the safeguards to prevent what I call the Frankright neurols. And so after a kenateln neuroals. And so after a while I crystallised these into what I called the Three Laws of

Robotics. 1 In the very first robot story I made reference to the fact that robots were built in such a way. that they could never turn on human beings, that's creators

well be for having estublished the base for the society of that time. Because I do feel that when robots or Intelligent computers actually come into existence something very much like the

threa laws will hove to exist. Perhaps when the three laws of robotics are established they will be known as "Asimov's Three Laws" - well it's nice to

Evans: Do you feel that current developments in ortificial intelligence, leading possiby to a computer which could have some bits of self-consclousness, are likely to affect man's image of himself? How will human beings react to such extraordinary developments?

Asimov: Well, i suppose man will resent them and there will be a strong effort, which mny win out, not to produce compilters that are rivals to man, or to destroy any that are produced.

Now I have definite views which perhaps put me in a rather tlny minority in this respect. Let's put it this way; so far evolution has come along through hlt-and-miss, random processes, and perhaps once you achieve a species which is Intelligent enough to guide evolution rather than be a slave to it, then the old random hlt-and-miss methods are no

is point they are amelicinally supe-

isapproval. We fcal that evolution ought to progress in tha direction that it does, as long es we are the end-product.

this or what we feal about it. in fact, considering what we -

that they can save the earth. good thame for a ceutionery

Asimov: So it does, and liputs; me in mind of a story written back in 1956 called "The last

in human history, showing the parallel development of human ings and computers. It shows how at each stage humanity makes enormous strides, from developing use of direct solar energy, to develop-

ing inter-stellar travel, to developing immortality, to developbodies, and so on.

At the same time computers become more and more ad
bodies, and so on.

At the same time computers become more and more ad
become more and more ad
control as the time way of reversing the inevitable death of the universe; but no being, Published by Panther Paperbacks,

ns the human mind could reach.

scenes, of the next trillion years

It's really a description, in six

more and more existent in hyperspace, more and more able to be everywhere in the univer-

Finally they get so intelligent and capable that all you've got to do is to ask them a question and the super-computer ana-

Now all through this history there has been this continual question arising - hence "The last question" as the title - as to

does dia. All that exists is the super-computer in hyperspace with It. And then the computer hovers over the dead universe to until finally it works out how to

restore everything. And the computer says, "Let



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COMPUTER YETEMS

the 20th Century Fox Wars" is C3PO (Sep-Threeplo one of the two

But by the fourth story I had ', u matter) have on which actually fully defined the Three Laws and they of course have been a staple of my stories ever

It is these three laws I think that made my robot stories different from any others, and a fact outlawed the old-fashioned robot stories from the pages of respectable science fiction.

- 3 ruginoes asked me to 22 robot story, I figured Evnns: I wonder how valid the three laws will turn out to be the its question of bow when computers or robots reach the point where we will need to in mindful of him", upply them Could you state them in order?

Asimov: The first is, A robot unity not harm a human being or through inaction allows human being to come to harm. The second law is that a robot must obey the orders given it by human belogs, except when such orders would conflict with the first law. The third law is that a robot must protect its own existence, except where that would conflict with the first of

Evons: And the "I ROBOT" second lawa. stories were really permutations of the difficulties that might arise where robots were forced. into juggling with the respective merits of these laws reason or another.

Aslmov: Yes, the laws are sufficiently smolguous so that you can consider ways in which they might fall to copy with real life. occurrences. At the sen needless to say. I began with rother trivial difficulties of paradoxes, but as time went o was more or less forced into deeper philosophic consideration of what the laws activities Of course I knew from

beginning that there rock On particuler circumstances arost was tied up with the

- h: cot because I didn't 3.4 was important, but > 1 went sure what I longer efficient. 5 to do with it and how to

a recently when one of

todo that would be

of course is the

Kale was art mindful of

ed the story is that

athit they have to

dominant on

treators, and thus beings on the

antrol the crea-

wee could call

arch into the field

tre really is more

veing put Into it

smarter, it

Maleyer being

In other words, from this point on we should expect mankind to start guiding evolution, both of his own and of other species. Well, un "nrtificial intelli-

gence" is of course mother species, and perhaps if we can more rapidly produce an artificial human bruin, then that is the direction that evalution ought to go, regardless of our personal feelings.

It doesn't matter to us that the reptiles probably disapproved of being replaced by the mainmais or that the munimals themselves probably disapproved of hoving the primntes take over the leadership, or that the lowar primates would resent the superiority of Man. All life forms, perhops, If they had tha vote, would disopprove of

mankind dominating. Now we don't care obout such

Well, by the same argument there's nothing sacred about us either and there's no reason why an intalligent computar, an artificial intelligence superior to our own, should not succeed to the "domination of the world" in the asme way that we have already done. Nor would one expect him to be bothered about.

Man-are doing to the world right now, my own feeling is that It's e shama that we can't get the intelligent robots to take over faster than they are likaly to, so Evans: That sounds: like a

question." It is my favourite because, of all my stories, this yas the one in which I allowed my imagination to run most riot.

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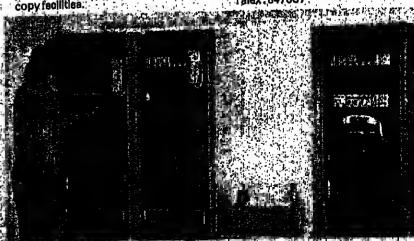
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CACCATE on line around the world

ting on a fairly modest show at

Systems 77, having decided to

take s booth on the joint UK

As iong on there is East-West political detents, there will otso be a growing demand for Eost-West trade.

At the 19th International Engineering Exhibition in Bmo, Czechoalovakia, last month more than 25 countries were represented, including exhibits from Americe, Japan end most WostemEuropeon countries. MALCOLM PELTU raporte that, at first sight, psyllion D at Brno, which was devoted to computers,

bore a striking resemblance to any Westarn computer show, with familiar names like IBM, ICL, NCR,

IT is a long way from Dalins to international enginering exhibi-

At the NCC earlier this year (CW, June 6), there was glitter and waste, aggressive marketing and selling, and a sparkling array of new products. in Brno last month, a Texas

Instrument calculator or a TV game on the Redifon stand were aufficient innovation to start a queue forming. There was little seiling capitalist-style, no significant new computer products

— but a great deal of serious
business talk.

For one of the first things any Western company trading with the Socielist world should realise is that the whole ethos of business life la different and demands special understanding.

It would be no use for a company to try to start e selling operation in Czechosiovakia by hiring a atend at Brno, diaplaying some products accompanied by e couple of salesmen and then its sixth five-year plan. The

Univac, Olivetti, Radifon and Scandata well to the

But beneath the surface, he found Brno worlds apart from Westam exhibitions like the National Computing Conference in Dallas, which he attended

In this article, Paltu discusses the differences and axplains the best ways in which Westom companies can run successful trading operations with the Socialist countries of East Europe.

# Brno; from the brash razzamstazz of the National Computing Conference to the no-frills directness of the Czechosiovak international confloration subthi business with the Socialist countries

hoping to pick up a few orders.
That is not the way to do business with the Socialist

It tokes time and experience to get to know how to sell goods in countries were centralised planning with central buying and selling organisations play a central role in the economic life.

Czechoslovakia, for example, is currently in the second year of milestones in the economy of the country and set the pattern for Investment In equipment. Purchasing decisions often depend on the stage that has been reached by the plan rather the required foreign currrency than on a particular customer.

Purchasing decisions often depend on the stage that has been reached by the plan rather than on a particular customer

Organisatione in Socialist countries wishing to purchase equipment from the West must also be able to make a convinc-

allowance.
The value of knowing the market is lliustrated by Roger Landau, who heads Redifon's Czechoslovak operations (CWi,

Landau had been working in Czechoslovakia for nine yenrs with ICL before joining Redifon in 1974. He says that by the end of this year he hopes to have sold 60 Seecheck key-to-disc systems - almost twice as much as the nearest Western rivals Pertec. whose data capture systems are marketed to Czechoslovakio viu

computer companies — the other is ICL — which have been

accredited in Czechoslovakla.

This means that the company

can have its own representatives

and offices in the country.

Otherwise, companies must

operate through Czechoslo-

vak-run foreign trode represen-

Robinco, a Swiss company. Data copture is an Important requirement in an economy with n centralised structure that has the need to process large

volumes of data. The experience of another data cupture enmpany, Scandata. illustrates another important characteristic of the market in Socialist contries: once you have a foothold in the market, customer loyalty can be high, provided the service offered shuws u seriaus lang-term

commitment. Scandata Optical Churacter Reading equipment had been sold to Czechoslovnkia by Interscan Ltd, until lust year when the company censed

trading.
But Peter Wolling, who may runs the Czech operation from Scandata's West German hase, says that Intarscon's finuncial problems did not scriously affect his Czechoslovnk business irecause all the promises made by Intersenn lind been fulfiller by

Pctr Muller, of Kovo, the Czechslovok foreign trodc corporation, emphasised the importance of iong-term relationships when i asked him about the potention of the Czech market for Western computer companies.

Contacts built up over the years with what he called the Redifon, ICL and IBM, are greatly respected so that a seconomic lifestyle. an exceedingly good case hefore being able to enter the market.

But he dld pinpoint one new area of technology to which there is "en open door" - the microprocessor.

concepts like distributed processing were very much to the Calculators are a much One of the most imples as European exhibits at was from the East Gel sought efter commodity in Czechosiovakia and colculetor displays by Texas instruments and Hewiett Peckard attrected a great deel of attention. In the mainframe business,

was from the Export, and Daro frame systems and Daro business machines. Zinge I asked Frank about done there is one thing in common between East and West — the dominance of iBM. Aithough other Western

Robo from about col trends in the Socialist col "Over the bast two demand for distributed po-demand for distributed pocountries have significant installation bases in East Europe, there is strong pressure for standardisation through the USEC range of IBM-like systems that ere being built as a joint

effort between a number of Socialist countries.
USEC, the Unified System of Electronic Computers, is better known by its Russian name.

processors plus a variety of compatible peripherals, each Socialist country concentrating on a particular processor and

Most visitors to the show are line of peripherals. expected to be German and the Czechoslovakia, for example incup of exhibitors, not sur-pidagly, will include an imhos built one of the smalle processors, the EC 1021, and sive array of domestic supdevelops and manufacture plers. But as In 1975 a sizeable equipment such as punchedcard contingent of UK based and paper tape readers and companies - 18 of them this punches, and a plotter, the ime - will be showing the flag EC7054 Digigraph, which is claimed to hold its own with its on a joint stand spon sored by the Business Equipment Trade Association and the Department Western competitors. The prefix EC before any item

notessing on October 17, while the three areas covered scpa-

istely on October 18 will be

The seminar program, which

rovers all five days of Systems

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The US based multinational

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electronic office and

vicroprocessor revolution.

of equipment Indicates that it is USEC compatible. As the USEC processors and presented. The computer Indus-ty giant, IBM, no less, will be there slong with some of the

operating systems are virtuity the same as IBM systems there could be increasing pressure from users in the Socialist countries for IBM-compatite

Rulf Dollna, marketing diretor of the Vienna-based compt ny Equipex, which sells Mean rex discs to Czechoslovaka Poland, Roumsnia and Bulgaria told Computer Weekly that her looking for new peripheral products to market in the countries as he believes thereis still great potential in these arcus, although he is doubted about the future of mainfrant sales once the USEC range really gets off the ground.

This move towards IBM compatibility has not affected fil which has just esptured is firs East European order for a 200

system (see front page). With a user base of over 3 record going back to the mid-sixtles, ICL has sufficient strength in Czechoslovakia i counteract the move to USE and IBM compatibility.

with the West

range.

And trendy technological

ions market, will be the Series 1 and IBM compatibility.

In any case, although there are a large number of USEC systems already in operation, there still seems to be a sufficient technological gap between East and West for systems like the 2000 series to systems. oini and the Systems 34 multiirromal transaction processing driness system. Also on show all be the older, less versatile System 32 and the 5100 — the the sind the 5100 — the with API. outperform the EC systems.

Taking advantage of the medical interest at the show, of the light of the light on a damenstration of the vices ever a developed Although the Western businessman operating in Ess MGST-SYS system developed le Kirchlichen Gemeinachaftselle für Elektronische Daten-Ubiquitous languages Coboi, Fortran, PL/I, RPG, etc. Coboi, Fortran, on the USEC ere to be found on the USEC g. This translates loughly as the Church Council for Data Processing. The system handles administration of

atients and the pathological No big German computer sow would be complete with-on Mixdorf, and like DEC the aling German small systems

Ambiecturer will demonstrate ome practical applications. bese will include e motor dealit package on its 8820 terminal system, the Nixdorf Infos dieg on an 8870/4 and a of \$20/45, a development of

1 100 key to disc system. emi 77 to introduce two Oceasor-based systems Continental marketplace. siala as a gatteral; pur-

THE blennial show that brings uses flocking to Munich from allower Europe, opens its doors again next Monday as Systems THE Mennial show that brings users flocking to Munich from all over Europe, opens its doors again next Monday as Systems 72.

All previous years, the event combines a big axhibition of anti-proving ters, periphernis and miscomputers, periphernis and small systems with a comdominate patersive program of symposius and seminars. All the papers presented will be translated similareously from German ino English.
The Systems 77 symposia will include a session on distributed Munich show software development and those two highly topical subjects, the

CARES Previews Systems | Wille | The Property |

an intelligent flexible disc storage system designed for online file management and text cditing. The CX400 comes with two intel 8080 micros, one for housekeeping and the other for customer programming with a user memory expandable in SK

bytes up to 32K bytes. Microprucessor-based dato storage will also be featured on the stand of another UK firm, Sintrom Electronics, In the form of its Perifile 6041 cartridge tape file. This is offered as a replacement for paper tope storage and uses a micro for automatic file searching and error handling. It can operate as a high speed remote I/O device and mects the requirements of the ECMA 46

and ANSI standards. Other Sintrom products on show will include the IBM 3740 compatible Perifiex 6550 dual

floppy disc system. Gresham Data Systems, part of Gresham Lion Ltd, will be demonstrating a varied range of equipment manufactured by its associate company, Process Peripherals, These wilt include rugged head per truck disc stores, image display systems and computer graphics equip-

The Series 100 and 110 rugged disc stores have maximum enpacities of 5.12 and 17.6 independent periphoral manu-leturets, Dataproducts, la uing Systems 77 to launch what it calls its Naw Ere range Megabits, respectively, un average access time in each case of 10 millisecunds, and a dutu of pinters. These include the 1200, a 200 tem mairix pinter, the B-300, e low cost transfer nate of fuur Megubits per second. They can be supplied with standard interfaces for 180, an 80 ches stromes most pupular inhilcomputers, including the PDP-11, and their Dataproducts will else show
a range of its extering line
printers and core memory manufacturer quites a mean time between fallure of 15,000 lunurs. The quntod aperational

life is 100,000 inurs.
The Series 121 LMD image displny system from Greahnm con enhance and display informution from sources ilko wcother actallites, medical scanners, process control trans-ducers and electron microscopes. The display system on show, the Series 114, can generate complex colour and monochrome pictures, from coded instructions.

Northern Software, one of the select group of UK software houses appearing et the show, is its Systems 75 appearance which led to business being picked up in Germany, Switzerland and the Netherlands, for its range of standerd accounting nackages.

Northern Software points out that its programs are available In Germen, Dutch or French, as well as English, and cover seles, purchase and nominal ledger processing. But the main feeture on the

Northern Software stand will be the new NOR-INV invoicing package currently being field tested with selected users in the UK. This enacies almost any type of business to produce in Transdate, one of the UK; lowing the user to specify the smi 77 to introduce Sys- lay-out and content of the introduce to the voice and the pricing and dis-gount structure of his business. Menegement, Systems and Programming, one of the UK's most successful software houses.

presenting online demonstrations of some of its leading products. These include Datomanager, a dota dictionary system aimed particularly at organlsotions planning to move to a full-scale database manage-

Also on show will be MSP's interpreting the information in Testmansger, a testing system the database built up by the for improving programmer productivity on a wide range of

ment system.

standard hardware/software system, called LEADS, will be packages and expensive turnkey demonstrated by the UK's Computer Aided Design Centre drafting systems. Input to the system is normally via a Tekat Systems 77. The system can tronix storoge tube, while capture, edit and reproduce 2output can be either on a storage dimensional schematic drawings and is written in interlinked tube or plotter. Though it is the blggest software modules. Extra mo-European based computer manufacturer, ICL will be putdules can be added to these for

basic modules. CADC believes that this ap-

exhibit slong with tha smaller British firms. The two products being featured by ICL are the System 220 small business computer that it introduced early this year as a re-leunch of the Singer System Ten and the 7502/15 terminal system. This will nin an order entry appli-cation while the 220 will be shown running some general

commercial jobs.
The leading UK peripheral manufacturer, Dsta Recording this trument Co, will be showing the latest additions to its range of matrix printers, cartridge tape drives, diskette and disc drives. The latter includes the 3300 fixed disc drive which has a capocity of more than 75 million bytes and comes in the form of a seven inch unit that fits into a 19-inch

DRi will also show a development of its Series 4000 fixed/exchangeable disc drive range which holds 12 Megabytes on a single spindle — six un e top looding cartridge and six on a



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DRI is surprised the peripheral production of peripheral peripher Indrit manufanthar Bi DRI's juli groutightange and tieck-up services are systicated to be produced and produc





A summery of main news items which have eppeered since the lest issue of Computer

Waekly Internetional on September 8.



THERE weren't too many peop-ie walking the streets of the Big

Apple with smiles on their faces

when the Grest New York

Blackout finally ended; but

there were a few. And they were

not all those who had suddenly

acquired n shiny new colone

television set and escaped ar-

Maybe the broadest smiles

long enough to vanse any real -Now that everyone knowe iust how eninerable power supply is even in the world's largest

the eve again and say that a UPS If the bleckout makes a fortune for anyone it will surely make a fortune for manufacturers of uninterrupted power sup-

l have slways been an advocate of UPS, and at the Cogar Corporation we raised a few yebrows by building e UPS capability into some Singer 1500 units as standard.

were reserved for the computer I thought then, and I am managers who had contrived to bully their offices into buying prepared to say I'm sure now, them s UPS in splte of the conthat we ware just a little shead ventional objection that power of our time. In a fsw years, only rarely went down and, even cut-rate independents will dare to offer any major device withwhen it did, the cut didn't last

against loss of power.

There are really two kinds of UPS, or rather a smaller and larger version of the basic conand most sophisticated city, it is cept. The strlpped-down UPS doubtful if any line manager provides battery back-up for msins power and thus somecould look bis c**omputer staff in** thing around 10 to 20 minutes computing for the entire system, or be up to an hour for just essential elements of the system (there may be considerable variations here according to size), and it sutomatically ens-

ures constent power supply free of fluctuations at other times. The "tuxedo-ed" UPS docs ali this and one more thing; it switches on a stendby generator to replace its own battery power once the 10 or 20 minute mark begins to loom if meins power

still has not returned. Of course most devices ere designed with certain tolerences to voltage fluctuetions.

out some kind of inherent guard. Neither processors nor able data before it switches itself peripherals are going to crack up If there's a surge or a drop of power within a few fractions uf

he stipulated input. In the UK many computers lisve operated without trouble even when strikes have resulted in long-term voltage reductions of up to 10%, I am told (though some VDUs began to suffer at the 6% mark).

But in the US there is e constant threat of brown-outs, and at least for the next few years the threst is likely to increase rather than diminish

indeed, if the environmental people get their wey, volatility of power supplies could become a permanent feeture of many parts of the US, just like it is in most developing countries.

In the face of this threat, it seems medness to take no more precautions than insuring your system will dump out all vulner-

power at the concentrator and-

denly. The more users at stake,

the less significant the capital

buttery technology is improving all the time. It has been a

painfully slow process, but It has

will be complete without its in

industry is going to become a

happy hunting ground for UKs salesmen. Most will be of un-

doubted integrity, a few will not

a UPS protagonist to the unwar

potential user: First of sil, con

sult a good electrical engine

before making a move. Second

iy, assign a cash value to down

time - easier for some than for

others. When you are working

out this value, try to include a notional figure for frustraller.

customer aggravation, late

completion, maybe even loss of

of your cash value (amortised

over as many years as you reck

on your UPS should last before

replacement) whether you need

a UPS with full systems ct. pability, or whether you could

devise an automatic shutdown

with consequently reduced

needs for batteries. Then work

nut what sort of risk of major

power loss you are prepared to

Are you going to gamble that few shutdowns last more than

an hour? Or are you going to

UPS to five or ten minutes and

have o standby generator in-stalled instead of extra

hatteries? Now you are ready to start looking for hardware.

And when you do, you ere in for a shock. All the salesmen will dwell heavily on the MTBF of dwell heavily on the fortunately.

their systems. Unfortunately

cven UPS systems break down and you should ensure that you

consulting engineer has worked

out the need for the cost of

preventive maintenance before

you sign the contract, Majoli

nonce costs rise exponential

assume the worst, limit your

of Inessential parts of the system

Thirdly, esiculate on the basis

data or of business.

So some words of advice from

In the meantime the compuler

tegral UPS.

Sealed lead-based batteries

And the other reason is that

enst of the UPS becomes.

Unfortunately the UPS concept scens to have been misunderstood by users. It is not a way of postunning shutdown by o few minutes - though even that can assure nn orderly closure of files.

Properly designed, n UPS system is a way of stuying in busiare a lot more reliable and take many more recharging cycles than old fashioned batteries ness when everyone else has shut-down - either for the full stretch of 90% or more of all am certain that further develop power losses; or, at a little extra ments will make batteries last cost, for even twn-day blackouts longer, recharge quicker, take like that which nobody ever up less space and cos thought could happen until it significantly less so that in a few happened In New York. years' time no computing device

The concept has been misunderstood because the ides has got around that a worthwhile UPS is appailingly expensive. This is becouse the best-known UPS users to date heve been airlines with huge reservations systems to protect, or time sharing services with enormous

For companies like these, a UPS can cost as much as \$2,000 per kVA, CaliData's 360 kVA UPS cost \$250,000 (£144,000) five

inflation-ridden years ago.
But figures ilke this are mis-leading. In the first place they have to be controsted with the possible loss of income resulting from power losses during the period of their emortisation: In the second place, the copital cost can be foirly insignificant for smail users.

I would be willing to bet that there are many smug DP ma-nagers in New York today who know that their "expensive" UPS paid for itself in one burst

There are two reasons why l am so confident that the UPS concept is going to become widespread. The first is the rapid growth of dato communications, which is about to enter an altogether new, enhanced phase

with the launch of SBS. Has onyone noticed that the telephones go on working when there is a power strike? Telephone companies all realised years ngo that power loss could have cotostophic rcsults, and their systems are all fully backed up by UPS.

There may be a curtailment in the number of lines nvuilnble into snd out of the affected eren. but the network itaelf keeps

Exactly the same has to apply to doto communications netnetwork with a concentrator installed at one location serving.

say, 40 usere at different places.

No network content of the concentrator alongside increasing ballery alongside increasing of a big sizes. Operating costs of a big sizes. Operating costs of a big sizes. Operating costs of a big sizes. No network can risk loss of (£11,450) a year.

Computers that talk and listen iigibility grestly. This tuning requires a good ear and a great deal of petience, but it is a way

From Page 16 tables that have greater fidelity than those developed by simply applying phonetic rules to the spoken words. The results of the expensive process include phonetic data, pitch information and a description of the emateur to the spoken words. The results of the emateur to the spoken words. The results of the emateur to the spoken words. The results of the emateur to the spoken words. The results of the emateur to the spoken words. The results of the emateur to the spoken words. The results of the emateur to the spoken words. The results of the emateur to the spoken words. The results of the expensive words words words. The results of the expensive words words words words words words. The results of the expensive words and a description of phrasing that la analagous to a mueical

the development of an easily-underatood vocabulary for a synthesiser will be an important part of any software project. For part of any software project. For nobbylste, whose needs may be may command machine met by less refined ejectronic didal systems particularly didal systems particularly didal systems particularly didal systems particularly didal systems whose have some systems whose have some most common method.

most common method.

With practice, a programmer voice may be used in common method.

With practice, a programmer voice may be used in common method.

can modify the data drawn from the with a reliabline for many phone to make the processing of t

for the emateur to achieve

Among the opportuall opened up by the developme of these low-cost conversation In commercial applications the development of an easily-underatood vocabulary for a ynthesiser will be an important art of any software project. For highly ste, whose needs may be of these low-cost conversal computers are many applications of the fields that will instruct a computer are many applications of the fields that will instruct a computer are many applications of the fields that will instruct a computer are many applications of the fields that will instruct a computer are many applications of the fields that will be an important are many applications of the fields that will be an important are many applications.

ROUNDUP cogarview UPS—a way to stay in business when others have shut Exxon joins the battle

The blest contender for n share of the potentially enorminus market for electronic office endputent is the worldwide oil examples. Evyon, which is ether to compete directly with

Europe as Esso, la ulso reighing in sgainst Xerox and Mar, the US telecommunications glant, for a share of this market. The text editor, calicd O'X is being built by Quix of Ligarille, Pennsylvania, o firm st up by Exxon Enterprises, in require capital organisation established by Exxon as part of is long-term diversification plans (CW, September 29.)

THE top three executives for fac, the National Enterprise Board's computer services compay have been appointed. John learte, who was NEB deputy evisional director of computers d dectrooks, has become its fulfilme managing director. Tony Chandor becomes Insac'a areter of business development responsible for all new business ventures outside the 15 and Saymour Joffe becomes the head of Insac's US operaions as president of insac inc. (CW, September 15).

COVERNMENT officials responsible for university computing in Austris, Belgium, Despark, West. Germeny, Holland and the UK met at Bath University at the first Conferena of European Computer South The conference diacussed matters of common interest and looked at the possibilities of hiematical university collin-boration (CW, September 15.)

THE french Socialist Porty has innounced that it intends to tationalise the country's only misframe manufacturer, Cil-Honywell Bull, if the "Left Minor wins the next Generol Exico next March. Its innin priner in the Allionce, the Communist Party, has only proposed nationolisation of Compagnie des Machines Bull, sach holds 53% of the C11-HB apply. (CW. September 22.)

THE biggest boost to dote for the lateractive is nguage Mumps was received last weak, with be announcement that specifications for on ANSI sandard for the language huvo bets accepted by ANSI's DP committee, X3. The Mumps
ANSI standard was first
contemplated almost a yeor ago
(CW, Seplember 23, 1976). Final approval gives this relatively aw, user-developed languaga a status so far schleved only by inguages such as Cobol, fortran and Resign (Co.) Fortran and Basic. (CW. September 22)

ONTRACTS for development of prototype compilers for the US Department of Defence's planned standard real time at the UK Three of the four contracte developers, with a nod in the effectively excludes Algol Mrs last candidate for a base proposes, Unexpectedly, at inguage. Unexpectedly, air imperators as selected for passals selected for passals selected for passal, a highly atructured is anguage, which on the basis of work in collaboration with the UK'e selected.

ofessor Tony Hoare. (CW

of the giants with QYX 2950 is expected by the end of November, it is understood that ICL is already pre-selling the system in the International markets including South Africe. (CW, October 6.)

FIRST of a series of joint stetements on computers and privacy hes been sent to the UK government's Date Protection Committee, which is drawing up proposals for possible legislation to protect personal data, by the British Computer Society, the Processor, designed to work as a Computing Services Association and the Data Processing Management Association. The three bodies represent about 30,000 members of the computer industry. (CW, October 8.) WITH the aim of gaining a foothold at its competitors' big

placed by Unilever Computer Services Ltd. The bureau has selected an Itsl AS/5-1 in preference to an IBM 370/158 and will be upgraded to an AS/5-3, equivalent to s 370/ 158-3, early in 1978. (CW, October 6.)

THE export potential of the technology developed by the Poet Office for Viewdata is underlined by the news that the Bundeapost in West Germeny has bought e GEC 4080 minicomputer and the rights to the software for triels of the system in West Germany. However, the French are

Advanced System has been different from Viewdste. Instead Tac plugs strsight into the eerial socket. (CW, October 6).

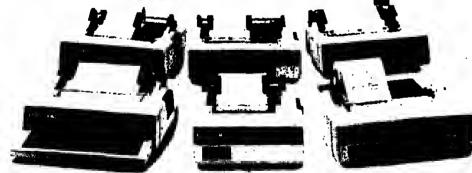
PRIVATE organisations will now be sole to offer competitive computer-based Information services to the Post Office's lewdats, And Viewdata, for the first time, gives users the chanca to buy terminals with an integral modem. Any receiver adapted for Viswdate will be eble to accsss the privately tun information service. The Post Office has conceded the principla of provision of equipment with integral modems, but it is not yet clear developing an alternative whether the ruling will apply

only to receivers also capable of taking ordinery televialon signals or to commercially evailsbie Viewdata-only terminals pisnned by companies like GEC and ITT. (CW, October

AN international reciproce agreement concluded last week should ensure wider marketing pportunities and better support Europe for two populer teleprocessing monitors. Westinghouse's Esti, for IBM mechines, end Zeus-Hermes Cortez, on ICL equipment. Westinghouse has teken marketing rights for Cortez in Europe and Zeus-Hermes hes undertaken to provide Implementation support for prospective Westi usere in the JK. (CW. October 6.)

COMPLETE range of peripherala for IBM Series minicomputers la to be introduced by Control Date within the next two months. The range wili include matrix end line printera, a video terminal, memories. (CW, October 6.)

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most of the French-bullt Level

AS a follow-up to its Fortran-

oriented "supercomputer", the Scientific Processor (CW, April

14), Burroughs has developed a

modified version with a reduced.

but still impressive, Fortran

performance, olmed at a wider

market, Known os the Atteched

Fortran Processor, AFP, it is like the Burroughs Scientific

"back end" to a general-purpose Burroughs mochine and can be

attached to the B6700, 6800, 7700

customer sites in Europe,

Hnncywell hos launched the

Page Printing System, PPS,

which runs ut up to 18,000 lpm and operates offline, accepting

magnetic tapes from any type of mainframe. The PPS has been

test marketed in the US for two

years and was officially

aunched earlier this year at the

National Computer Conference in Dalias (CW, June 23). (CW,

Scptember 29.)

or 7800. (CW, September 29.)

64 series. (CW, September 29.)

"The most significant TV devolopment for sports goverage
whose slow molion replay machines were introduced," was
how American Broadcasting
Corp production steff described
at schnique produced by British
know-how. Using the DPE 6000
developed by Quantel, of Caterlism, Surrey, ABC established o
world "first" in television
broadcasting an September 15.

broadcasting on September 15. Used during the broadcast of Used during the processes of the finals of the World Berlos Basebott, viewers were shown a computer controlled zoomed-up version of certain incidents. This version captures the incident in detail, no matter how instanting or a modificant are sentilled. insignificant or small it spears in the original shot. (CVV, September 29).

A FURTHER addition to tho Pillips ilne of workstotion oriented business computere hoe been onnounced in Germany. Called the P430, it will elot between the P420, announced last year, and the P440, is unched at Hanover in April, 1877. (CW. September 29.)

FORMAL agreement has bean reached between ICL and the South-West Universities Regional Computing Centra, on the development of an Aigol 68 compiler for the ICL 2000 series. The compiler is scheduled for release in October next year, and will be part of ICL's standard product range. (CW, September 29.)

ONE of the most successful independent teleprocessing monitore for ICL machines. Telecomputing's TPS, has been taken up by ICL, for marketing in the UK and Europe, This puts: users in these countries on a par with those outside Europe, to rofessor Tony Hoare. (CW. with those outside Europe, to whom ICL has been supplying whom ICL has been supplying TPS for almost a year (CW. This agreement with Telecomputing gives ICL innexcitative world lights to supply TPS for use on ICL's 2903 and 2904 machinest lighty well a plaining to extend under DMS (CW. Counter S).

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# Irish air traffic

THE Iriah end of Eurocontrol tha international body which handles air traffic control over much of Europe obove 25,000 feat, has called in Cara Data Processing of Dublin to inatali Racal-Milgo modems and switching equipment to link a radar station at Mount Gabriel in tha extrame weat of Ireland with the Eurocontrol centre at Shannon, and the Civil Aviation Drayton, Middlesex.

The installation in Shannon consists of two CJI Iris

# Saudi Arabian contract

SAUDI Arabia is now the biggest market after the UK for business forms specialist PFC (Business Forms) of Cradley Henth, near Birmingham. The latest contract is from the Saudi Arablan govarnment which has ordered optical mark recognition forms for two university research departmenta. The forms will be printed in Arabic and English and the company says the fact that it has Arabic speakers on its UK staff is one reason for its auccesa in Saudi Arabla over the last 18 months.

## **NBI** to expand

EXPANSION of word processing marketing into Western Europe and the Far East has ean announced by NBI, of Boulder, Colorado.

NBI currently markata Its software-based range of word

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FOUNCEO by a former computer saleamen, Joseph Auer, International Computer Negotie

icos provides usars with negotieting — not legal — advice, rune seminers for the people who are involved in the purchase of computers and publishes a remarkable newsletter, CNReport\*.

The tirm is also noteworthy for its resistance to

the pressures of big-city business and mekes its home in Winter Park, Florida, a town of 22,000 near the middle of that peninsula state (47 miles) due west of the Kennedy Space Centre and a stone's throw from the Oleney World amusement

Auer beliaves that computer contract negotie-tions ahould be more sporting, and in fact he is a sportsmen himselt. Before founding ICN in Mey, 1975, he wee a professional footbeller for five years with the Buftalo (New York) Gills, Miemi JFforida) Oolphina and Atlanta (Georgia) Falcons. It was in Atlanta thei Auer first worked in the

computer business as an amployee of Management Science America. MSA, the softwere company. Honaywell was his second — and last employer on the selling side of the business.

computers compelled him to try his hand at the underdog's side of the business And that is haw international Computer Negotiations came into

being.
ICN's edvantage is an insider's knowledge of the areas in which vendors can give in on price and service. As business has grown, ICN edded to its Honeywelf expertise by hiring formar employees at IBM, Burroughs, Univec end even the US Justice Depenment, which lost e member of its IBM enti-trust staff to ICN's ell-star nagotlating teem.

The firm's experte don't come cheap, but they believe their edvice is one of the few bargains in the computer business. For a fee that rune about \$1,000 per day, ICN will supply an appropriate bargeining adviser.
The firm claims that its clients save about

\$100,000 on a typical purchase or lesse worth £1,000,000, and they do it without having an ICN

As ICN's business grew, another need became

Adding a sporting touch to negotiations apparent to Auer, the need for basic knowledge Lest apring ICN leunched CNReport, its monthly nawsletter. It has garnered hundreds of subscribers, and not eff of them are computer subscribers, and not ell of than are computer buyers. Among the readers of CNRepart are nearly all the US maintrenne vendors, plus the big nerves in minicomputers and leosing.

Helping with the publication are well-known contract advisers, including Dick Brandon.

ICN's subserventure is a entree of seminare that

ICN's ather venture is a sories of seminars that will make the tirm truly international. Cased on a succeasfut US programme. ICN's European lecture tour will begin in London next April, Brussels and

Where does alt this leave Joe Auer, lormer football player and raformed computer estasmen? Will he quit when he has made his tiret hundred million and buy a professional football tranchise? "No way." he seys, now the compleat businessmen "I'lt buy myself e lossing

Company."

"CNReport, IGN, Box 364, Winter Pork, Floride, 32790, USA, \$195 per year plus \$25 for airmeil to Europe (abovo £125 from UK)

# Polish packet-switched network gets under way

POLAND'S experimental packet-switched network has progressed to the point where there are two mainframes attached to each of the three nodes along with several minlcomputers and terminals.

The project labeling managed Institute Communications in Warsaw and is similar in scope and conception to the French exlmental Cyclades network which was the proving ground for much European packet-

awitching technology.

Having started on the project iong before International standards like the X25 interface were established, the Poles have run into similar incompatibility problems to those encountered by tha UK Post Office with

A particular problam is posed by the unlikely choice of awitching computar, made aa long ago as 1972 (CW, August 8,

The machine selected was the

six-bit character, it is incomputlble with the 8-bit frame of X25. The link from node to subscriber uses the IBM blsynchronous, standard, But because only halfduplex modems were available, the institute has had to develop

its own protocol. The network has three nodes, Gdansk, Warsaw and Katowice. In Gdanak, two Odra 1300 series mainframes, which run ICL software, are connected. One belongs to the PTT and the other handlas applications relating to administration of

hipping. in Warsaw there is an ICL 1900 series machine at the statistica institute and an IBM 360 in the Ministry of Engineer-

while in Katowice there is an Odra used by mining industry and a 360 belonging to the chemical institute.

Links betwaen nodes are 4800 baud, and the mainframes are linked to the switches at 2400 baud. In oddition a variety n terminals, including DEC PDP-11 minis and ICL 1500 intelligent terminals are linked asynchro-

Because only half-duplex modems are used, acknowledg. ment of packets received are sent in the next block of data transmitted, Services being mplemented include virtual call, where a subscriber uses the network as If he had a contlauous direct link to the receiving machine for the duration of

s being said in campatition wit

short measages are sent and received at random, sequencing being done at the remote site.

For the future, the institute is considering changing the System Tens for Polish-built Mera 400 inlnicomputers.

# **Telex double**

ITALY hee been sided to the flat of countries where Telex salls the Lockhard System III as a nt far IBM's System 3 and a competitor for System

Talex hea so far instelled 38 System IIIs in Eurape, 14 at them in France, and is looking far sales of 100 Europe-wide by next March. In most cauntries Talex salis to existing IBM sers, but in Ireland the system System 34 and has alroady

An enhanced aperating system and a database system are under davalapmant et Lockheed, which will anable the System III to support up to sight Calcomp T200 200 Magsbyta

The other terminal for 1BM and ICL mainframes FERRANT

# Siemens version of **Easytrieve** package

ANOTHER software company which made its name in the IBM market has acknowledged with n product development the force of Slemens in the West German user community. Pensophic Systems, of Illinois, has produced a Slemens version of its Easytrieve information retrieval

package. Until now Pansophic's preducts have been entirely oriented to the IBM 360 and 370 series. apart from early versions for the RCA Spectra 70.

The new Essytrieve will run nn Siemen's 4000 series under the BS1000 and BS2000 operat-

4000 architecture has close affinitles with that of the Spectra 70 and also with the ICL System 4 - a point which could prove of interest to the UK market. The Sientens operating systems bore some similaritie to IBM software, easing the conversion task.

Pansophic ocknowledged that the large number of Siemens users in Germany was the main motive for developing the new version. Other previous IBM-dedicated software companies have perceived this nced, notably the UK's Altergo.

Pansophic could not comment on any plans to transfer their other products — the Panyalti library system and the Panda disc space analyser - 10 Sicmons equipment; nor could the company say if any other hardware was being investigated with a view to conversions.

Slemena Essytrieve has already been installed at test it stullations in Germany and Scandinavia, sald Pansophic.

# THE WAY AND THE PARTY OF THE PA

Numerical control is becoming big business for Siemens, which has now siming at another 1,800 sales warldwide this year, which will mean a revenue of about DM80 millian. Extensive use is now made of mierocomputer technology in equipment such as the Sinumerik Systam 7, seen here being manufactured at the Company's Erlangen plant. Mare then 150 of these and other NC systems from Siemsna were an show at the European Machine Tool Exhibitian in Hanover last manth.

# Philips approaches to IBM and Univac

FACED with the long-term naed for a auccassor to the Philipa P1000 machines in Philips, own factories in Eindhoven, Holland, the company has made compatible software on the preliminary approaches to Uni machine selected, he added.

use until 1980, and a spokesman, The chief criterion for a replecement for after that date will be the availability of

machine selected, he added.

The selection of a machina will not immediately bring a re-

Oaskico combination reader/punch with aeria chronous 99-232C compatible intertace Ossigned to operate with a terminal device n a dadice fed seriel fine. Reeder will generate dete at alf etandard baud rates up to 2400 baud. Punch eccepte data et ell alanderd beud relea up to 600 baud ontinuous or 4800 baud betch, ittlizing a 32 character buffer. wo modes of operation are provided: Auto Mode — Simulates Model ASR 33 Telalype using ASCI dalined data codes (OC 1, 2, 3 and 4) MODEL 1560-AS to activate / deactivate the reader or punch; Menual Moda — Code

ranaparant moda. Panel switches control activation/deactivation of reader of punch and associated larminal device. Tape duplication leature to provided by eating unit to LOCAL mode.

vac and IBM.

With the collapse of the Unidate value (CW, Saptember commandation for appropriate commandation for appropriate commandation for appropriate commandation by the P1000 users the inainframe business and concentrated on temal commandation could however the inainframe training that the commandation could however the inainframe training that the spokesman.

P1000s are likely to remain in time", said the spokesman. SWEDA INTERNATIONAL INC.

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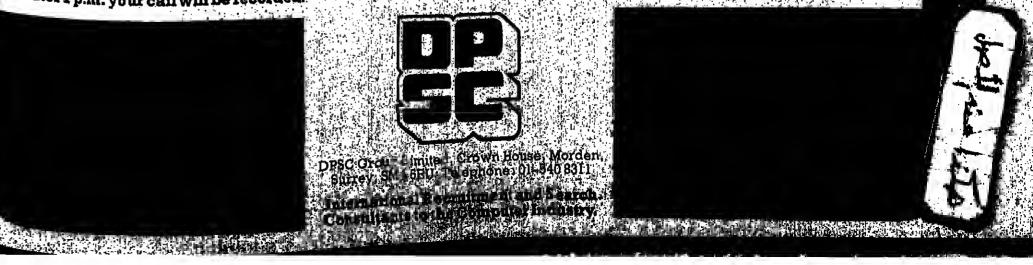
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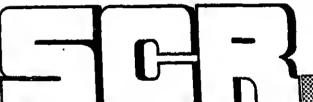
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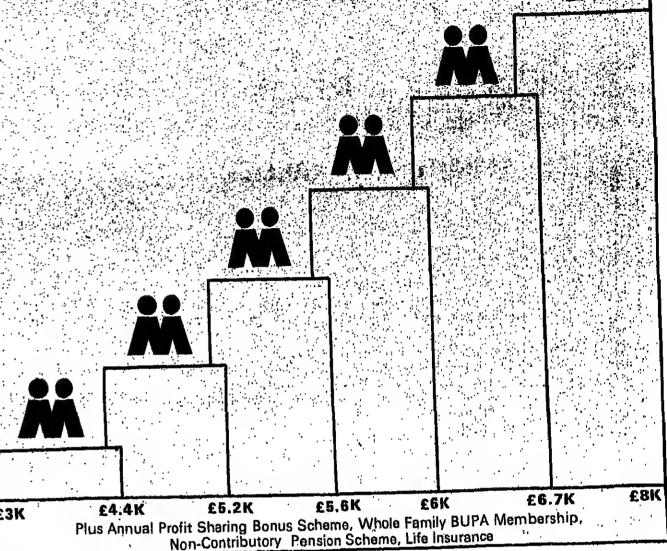
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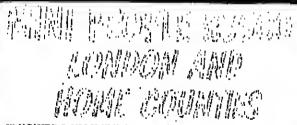
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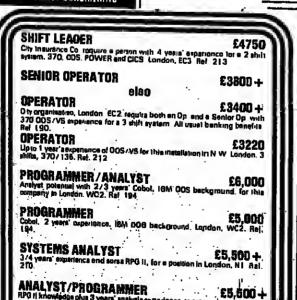
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# THE SALES BIT

# **Monday mornings** -and other myths

claim for business expenses, cleared. update the prospect hot list and complete any outstanding call-reports from the previous week.

By and large the arrange-ment worked quite well; but there was one character who regularly missed the midday deadline. However, he was also the company's which earned him a little extra flexibility and, as a result, the situation never became a problem.

One day i asked why only he wos regularly absent from the office on Monday mornings. To my surprise clients and prospects.

ses he was an average ritual.

fcllow, with none of the Appointments after 4.30 ciate with salesmen.

more calls than his fellow scheduling of appoint- There are two fairly

that selling cannot generaily be conducted on time appointment which records are essential.

WE used to have a regular assume that everyone has rouline. Every Monday masses of post to process morning each salesman was every day which excludes expected to complete hia all other events until it is

> Another negative ussumption, particularly in London, la that moat people-do not reach thair offices until after 9.30 am. The anawer is quite alm-

ple. Alwoys attempt to make the first appointment each day for 8.30 am. You will soon discover, and therefore be able to note. which people are usually around at that time. You will be surprised how

many bosses normally arnve at work before 8.30am or are willing to come in a littie earlier to see you. Most organisations do not finish he told me it was one of his distributing their mail until best times for meeting well after 9.30 am which lients and prospects. gives plenty of time for To oll intents and purpo discussion before the postal

articulate chansing that the pm are typically more uninformed normally asso- difficult to arrange than in the early morning, but However, analysis show- nevertheleaa many bosses ed that he constantly had a are prepared to stay until 6 prospect portfolio at least pm and beyond if they twice as big as any other believe they can discuss a salesman and a call-rate product which might be which was similarly in beneficial to their company. excess of that achieved by particularly with someone who is also prepared to give

any of his colleagues. who is also prepared to giv in fact his ability to make up a little of his own time. As far as lunchtime Is salesmen, thus generating concerned, the determined inore prospects, was due and well organised salea-ilmost chirely to his refu-man can work right sal to accept nny of the through the lunchtime pecommon myths concerning the time parometers which the time parameters are the time parameters and the time parameters are the time parameters and the time parameters are the time parameters ore supposed to govern the effective client records.

consistent features of lunch Many salesmen believe periods. They normally last for one hour and typically begin any time between 12 Monday mornings, Friday noon and 1.30 pm; le many afternoons, before i0 am or people have returned from afternoons, before i0 am or people have returned from after 4.30 pm and between lunch before others have the hours of noon and 2.30 commenced. The question pm; The notable exception being the occasional lunch-

can oftan be related more to Most salesmen within the self indulgence than seiling. DP industry could double The yary fact that this their existing call rate by bellef is so widespread utilising their selling time makes theae apparently more effectively, and the makes these apparently more effectively and the unavailable hours of busi-implications of such an ness particularly fruitful to increased workrate would the more objective sales-man. bring significant rewards for both salesman and

It also begs the question as to whether the typical lack of face-to-face sales disciplines and techniques and end of the weak is more wards such improvement, a function of inadequate but none can bring more saleamen than reluctant significant resulta than buyers. simply getting to the first call by 9 am at the latest the first call of the day, for it every day, knowing which

of subsequent sales activity, disregarding any generali-A familiar and exceptely sadons about proper and negative approach to improper times to call. planning sales calls is to

which can contribute totands to dictate the pattern cliants lunch when, and

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